



Our Students. Their Moment.

**New York State Testing Program
Grade 7 Common Core
Mathematics Test**

Released Questions

May 2016

New York State administered the Mathematics Common Core Tests in April 2016 and is now making approximately 75% of the questions from these tests available for review and use.

June 28, 2016



THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234

New York State Testing Program Grade 3-8 Mathematics

Released Questions from 2016 Exams

Background

In 2013, New York State began administering tests designed to assess student performance in accordance with the instructional shifts and rigor demanded by the new New York State P-12 Learning Standards in Mathematics. To help in this transition to new assessments, the New York State Education Department (SED) has been releasing an increasing numbers of test questions from the tests that were administered to students across the State in the spring. This year, SED is again releasing large portions of the 2016 NYS Grade 3-8 Common Core English Language Arts and Mathematics test materials for review, discussion, and use.

For 2016, included in these released materials are at least 75 percent of the test questions that appeared on the 2016 tests (including all constructed-response questions) that counted toward students' scores. Additionally, SED is also providing a map that details what each released question measures and the correct response to each question. These released materials will help students, families, educators, and the public better understand the tests and the New York State Education Department's expectations for students.

Understanding Math Questions

Multiple-Choice Questions

Multiple-choice questions are designed to assess the New York State P-12 Learning Standards for Mathematics. Mathematics multiple-choice questions will be used mainly to assess standard algorithms and conceptual standards. Multiple-choice questions incorporate both the grade-level standards and the "Standards for Mathematical Practices." Many questions are framed within the context of real-world applications or require students to complete multiple steps. Likewise, many of these questions are linked to more than one standard, drawing on the simultaneous application of multiple skills and concepts.

Short-Response Questions

Short-response questions require students to complete tasks and show their work. Like multiple-choice questions, short-response questions will often require multiple steps, the application of multiple mathematics skills, and real-world applications. Many of the short-response questions will cover conceptual and application of the standards.

Extended-Response Questions

Extended-response questions ask students to show their work in completing two or more tasks or a more extensive problem. Extended-response questions allow students to show their understanding of mathematical procedures, conceptual understanding, and application. Extended-response questions may also assess student reasoning and the ability to critique the arguments of others.

The scoring rubric for short and extended constructed-response questions can be found in the grade-level Educator Guides at <http://www.engageny.org/resource/test-guides-for-english-language-arts-and-mathematics>.

New York State P-12 Learning Standards Alignment

The alignment(s) to the New York State P-12 Learning Standards for Mathematics is/are intended to identify the primary analytic skills necessary to successfully answer each question. However, some questions measure proficiencies described in multiple standards, including a balanced combination of procedure and conceptual understanding. For example, two-point and three-point constructed-response questions require students to show an understanding of mathematical procedures, concepts, and applications.

These Released Questions Do Not Comprise a “Mini Test”

To ensure future valid and reliable tests, some content must remain secure for possible use on future exams. As such, this document is *not* intended to be representative of the entire test, to show how operational tests look, or to provide information about how teachers should administer the test; rather, its purpose is to provide an overview of how the test reflects the demands of the New York State P-12 Learning Standards.

The released questions do not represent the full spectrum of the standards assessed on the State tests, nor do they represent the full spectrum of how the standards should be taught and assessed in the classroom. It should not be assumed that a particular standard will be measured by an identical question in future assessments. Specific criteria for writing test questions, as well as additional assessment information, are available at <http://www.engageny.org/common-core-assessments>.

Name: _____



New York State Testing Program

2016 Common Core Mathematics Test Book 1

Grade 7

April 13–15, 2016

Released Questions

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Book 1

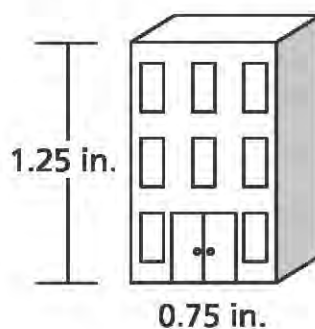


TIPS FOR TAKING THE TEST

Here are some suggestions to help you do your best:

- Read each question carefully and think about the answer before choosing your response.
- You have been provided with mathematics tools (a ruler and a protractor) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.
- Plan your time.

- 1 The drawing of a building, shown below, has a scale of 1 inch to 30 feet.



What is the actual height, in feet, of the building?

- A 22.5
- B 24
- C 37.5
- D 40

- 2 What is the value of the expression below?

$$-0.75 - \left(-\frac{2}{5}\right) + 0.4 + \left(-\frac{3}{4}\right)$$

- A -1.5
- B -0.7
- C 0.8
- D 2.3

GO ON

7

Lehana and Marty each opened a savings account with a deposit of \$100.

- Lehana earned 2.5% simple interest per year.
- Marty earned 2% simple interest per year.
- Neither of them made additional deposits or withdrawals.

How much more did Lehana receive in interest than Marty after three years?

- A \$0.50
- B \$1.50
- C \$5.00
- D \$15.00

8

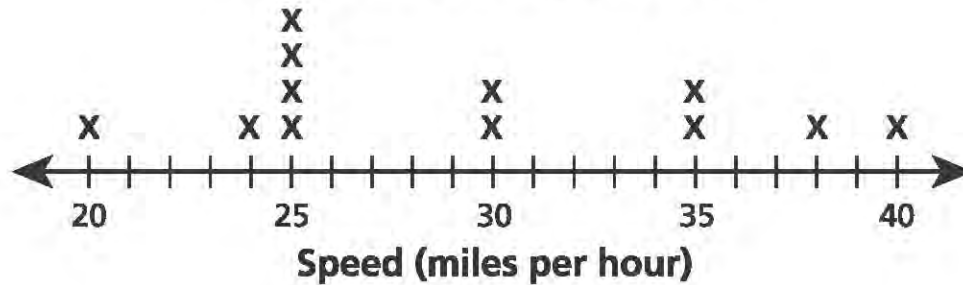
Addison wants to ride her bicycle more than 80 miles this week. She has already ridden her bicycle 18 miles. Which inequality could be used to determine the mean number of miles, m , she would need to ride her bicycle each day for six more days to achieve her goal?

- A $6m + 18 < 80$
- B $6m - 18 < 80$
- C $6m + 18 > 80$
- D $6m - 18 > 80$

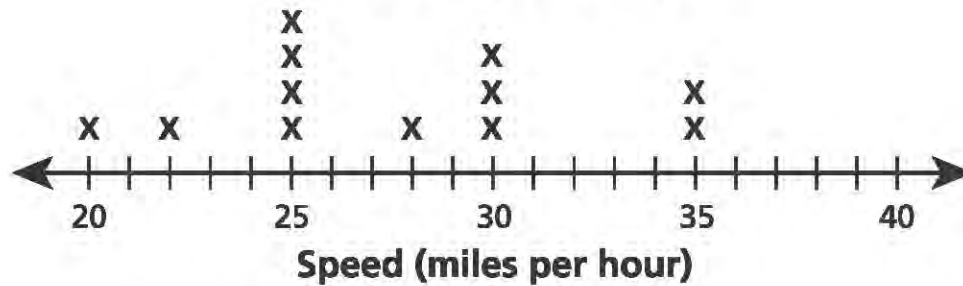
GO ON

- 9 An electronic sign that showed the speed of motorists was installed on a road. The line plots below show the speeds of some motorists before and after the sign was installed.

BEFORE SIGN INSTALLATION



AFTER SIGN INSTALLATION



Based on these data, which statement is true about the speeds of motorists after the sign was installed?

- A The mean speed and the range of the speeds of the motorists decreased.
- B The median speed and the range of the speeds of the motorists increased.
- C The mean speed of the motorists decreased and the range of the speeds increased.
- D The median speed of the motorists increased and the range of the speeds decreased.

- 10 A number, n , is multiplied by $-\frac{5}{8}$. The product is -0.4 . What is the value of n ?

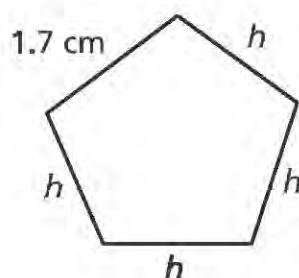
A $-\frac{16}{25}$

B $-\frac{1}{4}$

C $\frac{1}{4}$

D $\frac{16}{25}$

- 11 The perimeter of a certain pentagon is 10.5 centimeters. Four sides of this pentagon have the same length, in centimeters, h , and the other side has a length of 1.7 centimeters, as shown below.



What is the value of h ?

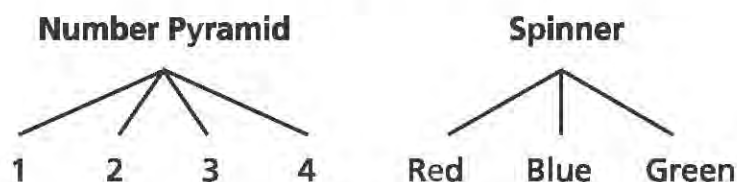
- A 2.2
B 3.7
C 4.8
D 8.8

GO ON

- 12 A school principal wants to determine which type of speaker the students prefer to invite to an assembly for the entire student population. Which survey method would produce the **best** representative sample?

A survey every fifth person who shops at a mall
B survey all of the students on the student council
C survey every tenth student entering the school one morning
D survey all of the students who went to the last basketball game

- 13 Henry has a fair number pyramid with four faces and a spinner with three equal-sized colored sections. The possible outcomes for each are shown below.



What is the probability that the number pyramid will land on three and the spinner will stop on blue?

- A $\frac{1}{12}$
B $\frac{3}{12}$
C $\frac{4}{12}$
D $\frac{7}{12}$

- 14 A company ordered 10 boxed lunches from a deli for \$74.50. Each boxed lunch cost the same amount. Which equation represents the proportional relationship between y , the total cost of the boxed lunches, and x , the number of boxed lunches?

A $7.45x = y$

B $\frac{7.45}{x} = \frac{10}{y}$

C $74.50x = y$

D $\frac{74.50}{x} = \frac{10}{y}$

- 15 What is the value of the expression $\frac{\left(\frac{2}{3} - \frac{5}{6}\right)}{\frac{3}{4}}$?

A $-\frac{2}{9}$

B $-\frac{1}{8}$

C $\frac{1}{8}$

D $\frac{2}{9}$

- 16 Which event is **most** likely to occur?

- A flipping a fair coin, with sides labeled heads and tails, and the coin landing on tails
- B choosing a marble out of a bag, with nine blue marbles and one red marble, and the marble being red
- C rolling a fair number cube, with faces labeled one to six, and the cube landing on a number less than six
- D spinning the arrow on a spinner, with four equal sectors labeled one to four, and the arrow landing on a number greater than one

GO ON

20

A trailer will be used to transport several 40-kilogram crates to a store. The greatest amount of weight that can be loaded onto the trailer is 1,050 kilograms. An 82-kilogram crate has already been loaded onto the trailer. What is the greatest number of 40-kilogram crates that can also be loaded onto the trailer?

A 24

B 25

C 26

D 27

21

What is the value of the expression?

$$\frac{8}{15} \div (-0.35)$$

A $-\frac{75}{14}$ B $-\frac{32}{21}$ C $-\frac{21}{32}$ D $-\frac{14}{75}$

22

What is the value of the expression below?

$$\left(3\frac{1}{2} - 9\frac{3}{4}\right) \div (-2.5)$$

A -2.5

B -2.3

C 2.3

D 2.5

GO ON

Grade 7
2016 Common Core
Mathematics Test
Book 1
April 13–15, 2016

Name: _____



New York State Testing Program

2016 Common Core Mathematics Test Book 2

Grade 7

April 13–15, 2016

Released Questions

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Book 2



TIPS FOR TAKING THE TEST

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- Read each question carefully and think about the answer before choosing your response.
- You have been provided with mathematics tools (a ruler, protractor, and calculator) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.
- Plan your time.

27 Which expression is equivalent to $4 - (-7)$?

- A $7 + 4$
- B $4 - 7$
- C $-7 - 4$
- D $-4 + 7$

28 The elevation at ground level is 0 feet. An elevator starts 90 feet below ground level. After traveling for 15 seconds, the elevator is 20 feet below ground level. Which statement describes the elevator's rate of change in elevation during this 15-second interval?

- A The elevator traveled upward at a rate of 6 feet per second.
- B The elevator traveled upward at a rate of $4\frac{2}{3}$ feet per second.
- C The elevator traveled downward at a rate of 6 feet per second.
- D The elevator traveled downward at a rate of $4\frac{2}{3}$ feet per second.

29 Which expression represents the product of 3 and $\left(\frac{5}{4}n + 1.8\right)$?

- A $5.55n$
- B $9.15n$
- C $3.75n + 1.8$
- D $3.75n + 5.4$

GO ON

- 33 Mike took a taxi from his home to the airport. The taxi driver charged an initial fee of \$6 plus \$3 per mile. The total fare was \$24, not including the tip. How many miles did Mike travel by taxi on this ride?
- A 2
B 6
C 8
D 10
- 34 The original selling price of a share of stock was d dollars. The selling price for a share of the same stock at a later date was represented by the expression $1.15(0.95d)$. Which description could explain what happened to the price of the share of stock?
- A The price decreased by 5% and then increased by 0.15%.
B The price decreased by 95% and then increased by 0.15%.
C The price decreased by 5% and then increased by 15%.
D The price decreased by 95% and then increased by 15%.
- 35 A clothing store used the sign shown below to advertise a discount on shirts.



Ky wants to buy three shirts, which were originally priced \$49.96 each. The store will discount the price of the third shirt and then apply a 7.1% tax to the total cost of all three shirts. Including the tax, what will be the mean cost of each shirt?

- A \$41.99
B \$42.70
C \$44.59
D \$45.18

GO ON

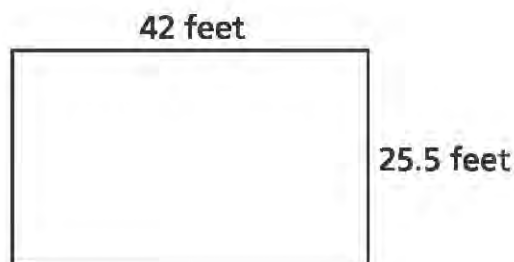
- 36 The results for a survey of 120 students who were selected randomly are listed below:

- 60 students have a cell phone plan with company X
- 36 students have a cell phone plan with company Y
- 24 students do not have a cell phone

The total population of students was 380. Based on the data, what is the **best** approximation for the total number of students who have a cell phone plan with company Y?

- A 114
- B 127
- C 143
- D 163

- 37 Wallpaper was applied to one rectangular wall of a large room. The dimensions of the wall are shown below.



If the total cost of the wallpaper was \$771.12, what was the cost, in dollars, of the wallpaper per square foot?

- A \$0.61
- B \$0.72
- C \$1.39
- D \$1.65

Three friends own a landscaping business. The number of hours each friend spent on the same project is shown in the table below.

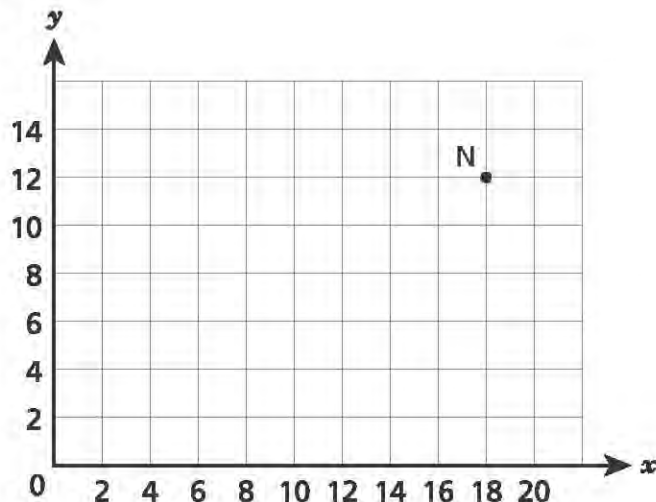
**HOURS WORKED ON
LANDSCAPING PROJECT**

Name	Hours Worked
Edgar	$17\frac{1}{4}$
Kelly	$18\frac{1}{4}$
Shawn	$14\frac{1}{2}$

In total, they earned \$850 for the job. They put 15% of this amount into a joint savings account for future expenses. They then divided the rest proportionally based on the number of hours each worked. How much money did Shawn receive?

- A \$209.53
- B \$240.83
- C \$283.48
- D \$295.11

- 39 Line KN represents a proportional relationship. Point N lies at $(18, 12)$, as shown on the graph below.



Which ordered pair could represent the coordinates of point K?

- A $(6, 0)$
 - B $(2, 3)$
 - C $(1.5, 0)$
 - D $(7.5, 5)$
- 40 Which expression is equivalent to the expression $-3(4x - 2) - 2x$?

- A $-8x$
- B $-16x$
- C $-14x - 2$
- D $-14x + 6$

- 41 Maya uses blue and orange fabric to make identical wall decorations. The graph below shows the relationship between the amounts of blue and orange fabric used.



What is the constant of proportionality as shown in the graph?

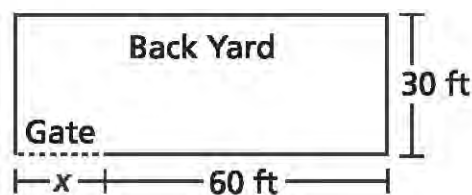
- A $\frac{3}{10}$
- B $\frac{2}{5}$
- C $\frac{3}{7}$
- D $\frac{1}{2}$
- 42 Lance bought n notebooks that cost \$0.75 each and p pens that cost \$0.55 each. A 6.25% sales tax will be applied to the total cost. Which expression represents the total amount Lance paid, including tax?
- A $0.0625(n + p) + 0.0625(0.75n + 0.55p)$
- B $(0.75n + 0.55p) + 0.0625(0.75n + 0.55p)$
- C $0.75(0.0625n) + 0.55(0.0625n)$
- D $0.75(1.0625n) + 0.55(1.0625n)$

GO ON

- 43 A recycling plant processes an average of $\frac{1}{3}$ ton of glass each minute. At approximately what rate does the recycling plant process glass, in tons per day? (1 day = 24 hours)

A 20
B 180
C 480
D 4,320

- 44 When Keisha installed a fence along the 200-foot perimeter of her rectangular back yard, she left an opening for a gate. In the diagram below, she used x to represent the length, in feet, of the gate.



What is the value of x ?

- A 10
B 20
C 25
D 30
- 45 Last year 950 people attended a town's annual parade. This year 1,520 people attended. What was the percent increase in attendance from last year to this year?
- A 37.5%
B 57.0%
C 60.0%
D 62.5%

Grade 7
2016 Common Core
Mathematics Test
Book 2
April 13–15, 2016

Name: _____



New York State Testing Program

2016 Common Core Mathematics Test Book 3

Grade 7

April 13–15, 2016

Released Questions

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- Be sure to show your work when asked.
- Plan your time.

- 52 An after-school program offers tutoring for different subjects. During the last month, a teacher recorded the number of students who participated in tutoring in each subject, as shown in the table below.

TUTORING PARTICIPATION

Subject	Number of Students
Math	40
Science	55
English	47
History	58

Explain how the teacher could use these data to predict **about** how many of the next 100 students will participate in math tutoring.

GO ON

53

A home-improvement store sold wind chimes for \$30 each. A customer signed up for a free membership card and received a 5% discount off the price. Sales tax of 5% was applied after the discount. What was the final price of the wind chime?

Show your work.

Answer \$_____

GO ON

54

Ms. Hernandez has \$100 to spend on parking and admission to the zoo. The parking will cost \$7, and admission tickets will cost \$15.50 per person, including tax. Write and solve an equation that can be used to determine the number of people that she can bring to the zoo, including herself.

Show your work.

Answer _____ people

GO ON

- 55 Two math classes took the same quiz. The scores of 10 randomly selected students from each class are listed below.

- Sample of Class A: 75, 80, 60, 90, 85, 80, 70, 90, 70, 65
- Sample of Class B: 95, 90, 85, 90, 100, 75, 90, 85, 90, 85

Based on the medians of the scores for each class, what inference would you make about the quiz scores of all the students in Class A compared to all the students in Class B? Explain your reasoning to justify your answer.

- 56 A contractor is building the base of a circular fountain. On the blueprint, the base of the fountain has a diameter of 18 centimeters. The blueprint has a scale of three centimeters to four feet. What will be the actual area of the base of the fountain, in square feet, after it is built? Round your answer to the nearest tenth of a square foot.

Show your work.

Answer _____ square feet

GO ON

57

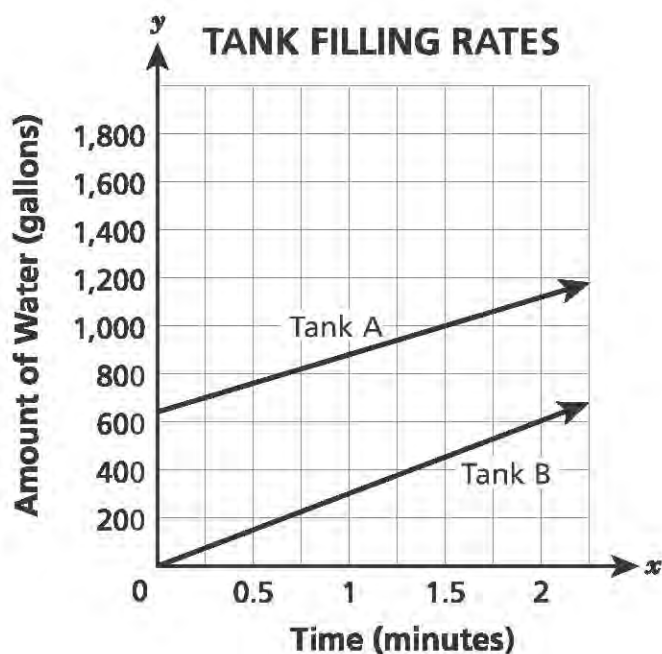
Explain the steps needed to determine the value of the expression shown below. Be sure to provide the correct value of the expression in your explanation.

$$\frac{\frac{1}{2}}{-\frac{2}{5}} + \left(-\frac{1}{4}\right)$$

Answer

GO ON

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Trent is fishing from a pier.

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.

Answer _____ feet

GO ON

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

Answer \$ _____

GO ON

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

Answer \$_____

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

Answer \$_____

STOP

Place Student Label Here

Grade 7
2016 Common Core
Mathematics Test
Book 3
April 13–15, 2016

THE STATE EDUCATION DEPARTMENT
THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234
2016 Mathematics Tests Map to the Standards
Released Questions Available on EngageNY

Grade 7

Question	Type	Key	Points	Standard	Cluster	Secondary Standard(s)	Multiple Choice Questions:	Constructed Response Questions:	
							Percentage of Students Who Answered Correctly (P-Value)	Average Points Earned	P-Value (Average Points Earned ÷ Total Possible Points)
Book 1									
1	Multiple Choice	C	1	CCSS.Math.Content.7.G.A.1	Geometry		0.70		
2	Multiple Choice	B	1	CCSS.Math.Content.7.NS.A.1d	The Number System		0.40		
7	Multiple Choice	B	1	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships		0.44		
8	Multiple Choice	C	1	CCSS.Math.Content.7.EE.B.4b	Expressions and Equations		0.54		
9	Multiple Choice	A	1	CCSS.Math.Content.7.SP.B.3	Statistics and Probability		0.48		
10	Multiple Choice	D	1	CCSS.Math.Content.7.NS.A.2c	The Number System		0.47		
11	Multiple Choice	A	1	CCSS.Math.Content.7.EE.B.4a	Expressions and Equations		0.69		
12	Multiple Choice	C	1	CCSS.Math.Content.7.SP.A.1	Statistics and Probability		0.57		
13	Multiple Choice	A	1	CCSS.Math.Content.7.SP.C.8a	Statistics and Probability		0.51		
14	Multiple Choice	A	1	CCSS.Math.Content.7.RP.A.2c	Ratios and Proportional Relationships		0.33		
15	Multiple Choice	A	1	CCSS.Math.Content.7.NS.A.3	The Number System		0.47		
16	Multiple Choice	C	1	CCSS.Math.Content.7.SP.C.5	Statistics and Probability		0.63		
20	Multiple Choice	A	1	CCSS.Math.Content.7.EE.B.4b	Expressions and Equations		0.60		
21	Multiple Choice	B	1	CCSS.Math.Content.7.NS.A.2c	The Number System		0.44		
22	Multiple Choice	D	1	CCSS.Math.Content.7.EE.B.3	Expressions and Equations		0.38		
Book 2									
27	Multiple Choice	A	1	CCSS.Math.Content.7.NS.A.1c	The Number System		0.67		
28	Multiple Choice	B	1	CCSS.Math.Content.7.NS.A.2b	The Number System	CCSS.Math.Content.7.RP.A.1	0.51		
29	Multiple Choice	D	1	CCSS.Math.Content.7.EE.A.1	Expressions and Equations		0.48		
33	Multiple Choice	B	1	CCSS.Math.Content.7.EE.B.4a	Expressions and Equations		0.67		
34	Multiple Choice	C	1	CCSS.Math.Content.7.EE.A.2	Expressions and Equations		0.39		
35	Multiple Choice	C	1	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships		0.48		
36	Multiple Choice	A	1	CCSS.Math.Content.7.SP.C.6	Statistics and Probability		0.51		

Grade 7

Released Questions Available on EngageNY

Question	Type	Key	Points	Standard	Cluster	Secondary Standard(s)	Multiple Choice Questions:	Constructed Response Questions:	
							Percentage of Students Who Answered Correctly (P-Value)	Average Points Earned	P-Value (Average Points Earned ÷ Total Possible Points)
37	Multiple Choice	B	1	CCSS.Math.Content.7.RP.A.1	Ratios and Proportional Relationships		0.42		
38	Multiple Choice	A	1	CCSS.Math.Content.7.NS.A.3	The Number System		0.45		
39	Multiple Choice	D	1	CCSS.Math.Content.7.RP.A.2a	Ratios and Proportional Relationships		0.35		
40	Multiple Choice	D	1	CCSS.Math.Content.7.EE.A.1	Expressions and Equations		0.57		
41	Multiple Choice	C	1	CCSS.Math.Content.7.RP.A.2b	Ratios and Proportional Relationships		0.39		
42	Multiple Choice	B	1	CCSS.Math.Content.7.EE.A.2	Expressions and Equations		0.50		
43	Multiple Choice	C	1	CCSS.Math.Content.7.RP.A.1	Ratios and Proportional Relationships		0.64		
44	Multiple Choice	A	1	CCSS.Math.Content.7.EE.B.4a	Expressions and Equations		0.48		
45	Multiple Choice	C	1	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships		0.39		
Book 3									
52	Constructed Response		2	CCSS.Math.Content.7.SP.C.6	Statistics and Probability			0.61	0.30
53	Constructed Response		2	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships			0.88	0.44
54	Constructed Response		2	CCSS.Math.Content.7.EE.B.4a	Expressions and Equations			1.16	0.58
55	Constructed Response		2	CCSS.Math.Content.7.SP.A.2	Statistics and Probability			0.93	0.46
56	Constructed Response		2	CCSS.Math.Content.7.G.B.4	Geometry	CCSS.Math.Content.7.G.A.1		0.56	0.28
57	Constructed Response		2	CCSS.Math.Content.7.NS.A.3	The Number System			1.12	0.56
58	Constructed Response		3	CCSS.Math.Content.7.RP.A.2a	Ratios and Proportional Relationships	CCSS.Math.Content.7.RP.A.2b		0.95	0.32
59	Constructed Response		3	CCSS.Math.Content.7.EE.B.3	Expressions and Equations			0.92	0.31
60	Constructed Response		3	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships			1.01	0.34
61	Constructed Response		3	CCSS.Math.Content.7.NS.A.3	The Number System			1.43	0.48

*This item map is intended to identify the primary analytic skills necessary to successfully answer each question. However, some questions measure proficiencies described in multiple standards, including a balanced combination of procedural and conceptual understanding.